



St John's C of E Primary School

Mathematics Policy

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| School Policy | Prepared by Subject Leader |
| School Staff were consulted on this document | Autumn 2024 |
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St. John's C of E Primary School

Mathematics policy

Our Vision

Learn Together • Achieve Together • Celebrate Together
“and let your light shine.” Matthew 5:16

Our Mission Statement

To enable all children to achieve their true potential in a caring Christian community.

Our Values

Respect • Responsibility • Kindness • Truthfulness • Perseverance

1. Introduction

“Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.” (National Curriculum 2014)

2. Aims of the National Curriculum

- Becoming fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time.
- Develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; following a line of enquiry, conjecturing relationships and generalisations.
- Developing an argument, justification or proof using mathematical language
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into a simpler steps and persevering in seeking solutions.

3. Intent

We believe that our maths curriculum fosters a sense of curiosity, passion and enjoyment surrounding Maths, underpinning the belief that ALL children are mathematicians. We pride ourselves on placing our children at the heart of our curriculum and adapt our small steps in learning accordingly, for every child to meet their full potential. They are taught fluency, reasoning and problem-solving skills to ensure they are fully equipped for the future, enabling our children to think mathematically and apply their skills confidently in a range of contexts.

Within our maths curriculum, we strongly believe that Mastery is about developing a secure understanding. Maths isn't about quick answers, instead we challenge all learners by going 'deeper' – playing and delving into the ideas and concepts. All learners need a challenge, and for the more able this doesn't mean moving through the curriculum faster, instead, utilising higher order thinking skills to explain, create, formulate and hypothesise. Children are also expected to recall their times tables and

key number facts by heart. These key skills will allow children to access mastery concepts at a faster pace and therefore access the whole curriculum.

3.1 The purpose of studying mathematics in our school

- To develop a positive attitude towards mathematics, where all children feel successful and motivated
- To develop confidence in using and applying the skills that children have learnt
- To develop the ability to work independently and collaboratively with others
- To develop confidence in mathematical discussion, encouraging children to question, share and learn from their mistakes
- To reason, think logically and be systematic in their work
- To apply mathematical knowledge across all areas and in real life situations
- To understand mathematics through a process of enquiry and investigation

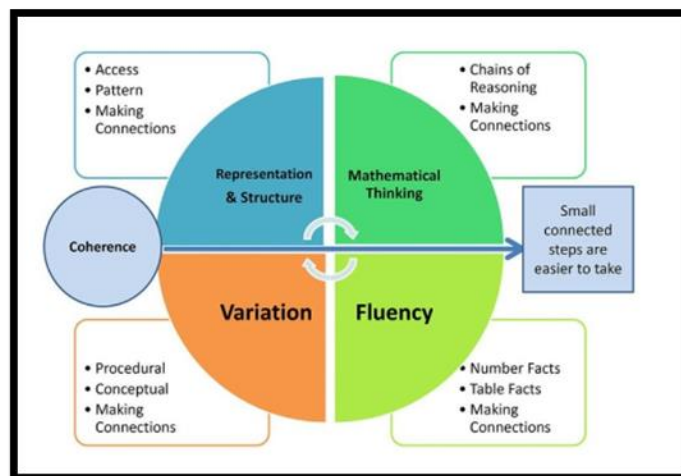
3.2 Early Years Foundation Stage (EYFS)

As the EYFS curriculum is separate to the National Curriculum; children should be able to:

- Count confidently
- Have a deep understanding of numbers to 10
- Understand relationships and patterns between numbers
- Have a secure base of knowledge and mathematical vocabulary
- Develop their spatial reasoning skills
- Develop positive attitudes and interests in maths

3.3 Curriculum Design and Progression. Long term planning.

The National Curriculum for Mathematics, along with Development Matters (2021) in the Early Years, form the basis for the long-term planning for mathematics taught in our school. This runs alongside White Rose. Our mastery approach is underpinned by the Five Big Ideas of Mastery (which are outlined below).



4. Implementation

4.1 Medium term planning

We use planning materials from White Rose as a starting point for our medium-term planning in mathematics. This approach is centred around the principle of 'Maths Mastery'. It places an emphasis on developing children's understanding of number and their ability to flexibly use and apply it to other areas of the maths curriculum. Within this scheme children have a much longer block of time to access

each area of mathematics which reinforces White Rose's approach of encouraging children to deepen their understanding of an objective and master its application before moving on. Using small steps, it prevents cognitive overload and allows children to build on previous concepts and retrieve information from the long-term memory.

Children are regularly given opportunities to revisit and apply this knowledge throughout the year to strengthen and deepen their understanding. The children are encouraged to practice and develop their competency within each area, reason and talk about their maths and use and apply what they have learnt in order to make links to other areas of mathematics. Through use of these materials, teachers are supported in keeping learning within the relevant year group, whilst building in challenge to broaden and deepen children's understanding. Teachers make decisions at the medium-term planning stage about how long they will need to spend on each block, what the beginning and end points are and how learning will be revisited and built upon throughout the year.

4.2 Times tables

Children are expected to learn their times tables from the end of Year 2. Children are expected to access Times Table Rock Stars weekly as part of their homework and times tables are taught discreetly throughout the year. In Year 3 and 4 children complete Fast Maths at least 3 times a week (see appendix A). This prepares the children for the Times Table Check at the end of Year 4.

4.3 Short Term Planning

Teachers use White Rose materials to support their daily lesson planning. Materials are adapted and carefully selected to develop a coherent learning journey throughout the lesson, making the small steps needed to move children's learning forward. KS1 children receive additional number fluency sessions using the NCETM Mastering Number Programme. In the Early Years Foundation Stage, mathematics learning takes place both inside the classroom and outdoors, through both adult-led or child initiated activities.

5. Teaching and Learning

All mathematical lessons involve elements of:

- Instruction – giving structured information to move learning forwards
- Demonstrating - using manipulatives and carefully chosen models to expose the mathematics
- Questioning and discussing – including allowing time to fully address potential misconceptions.
- Making connections – What do I already know that will help me today?
- Consolidating
- Opportunities for reflection and evaluation
- Summarising – What have we learnt today? How will it help us with future learning? What's coming up?

5.1 Planning and Preparation

Careful planning and preparation ensures that throughout the school children engage in:

- Practical activities and games using a variety of resources
- Opportunities for problem solving and reasoning
- Purposeful practise, allowing time to apply what they have learnt
- A range of strategies and models to support calculation
- Collaborative learning through group, pair or whole class learning to share ideas and challenge thinking
- Making links to maths in other foundation subjects (e.g Science, Geography, Computing,) in order to provide opportunities to apply mathematical understanding in wider, 'real-life' contexts.

5.2 Concrete, Pictorial, Abstract (CPA)

Concrete (manipulatives) pictorials (pictures/diagrams) and abstract concepts are used to communicate ideas to each other so learners are given time to 'make sense' of what is represented, to play with and challenge ideas. Learners are required to go beyond 'what's the answer?' to show the answer in many ways to grapple with 'how' and 'why'. We promote lessons that are active, that enable learners to work and question collaboratively to provide extended answers and responses.

5.3 Positive Learning Environment

All classrooms have a maths working wall on which maths vocabulary, sentence stems, pupil generated success criteria, and relevant models and images are displayed to support learning. Over the course of the year, these will adapt and change as learning develops. All children have access to a wide range of quality manipulatives to support their learning. Each key stage has a stock of core resources that are age appropriate. Resources may be shared between phases and this is particularly useful to support transition between key stages.

5.4 The Role of the Teacher in Maths Lessons

Teachers recognise the need to foster positive learning attitudes to mathematics. Key strategies to enable this are:

- The role of the teacher is to question answers, not to answer questions.
- Celebrating making mistakes – mistakes encourage debate and reasoning.
- Convince yourself, convince a friend, convince the sceptic
- Think, pair, share – Give time for individual thinking time before talking and sharing.
- Creating an environment where children engage and independently reason and problem solve
- Use assessment for learning to determine the progress within a lesson
- To address common misconceptions
- Use mixed ability groupings to ensure all children achieve

5.5 Access to Learning

It is very important that all learners are given the opportunity to access mathematical concepts in different ways. Teachers have a depth of subject knowledge to deliver lessons, to maximise challenge for all. This can include: 1. Providing open ended questions: often, when closed questions are given to learners in heterogeneous groups, many will fail or not be challenged, so it is imperative that tasks are open ended with a 'low floor' and a 'high ceiling'. 2. Promoting growth mind-set: learners can be offered tasks that address encourage a growth mind-set, it is important that learners are able to work on the choices they make for themselves based on self-assessment.

6. Impact

6.1 Monitoring, Evidencing and Assessment

We strongly believe that '**Evidence should be for the benefit of the child and/or the teacher**'.

Therefore, we take the view that previous learning should be accessible to learners in a variety of ways that enable retention of key ideas and make connections between mathematical concepts and new ideas. This key evidence will reflect the collaborative learning culture we promote, inform assessment and enable learners to make sustained progress.

6.2 Tracking Progress

A re-focus on classes achieving age-related expectations are identified each term during formal progress meetings and informally by the teacher intermittently over the course of the year ensuring the learners are 'ready' for the next years learning. Towards the end of each term, judgements are evaluated by setting tasks and asking probing questions to ensure the learning is secure. If not, then teaching interventions need to be put in place to allow pupils to achieve mastery as soon as possible.

Throughout the year teachers will use a range of formative and summative assessments, ranging from in the moment marking to NFER assessments, in order to assess children. Assessment in EYFS happens through observation of pupils engaged in self-initiated play, through practical activities in adult –led and adult-initiated activities.

6.3 Continuing Professional Development

The school works with Chelmsford Teaching Schools Alliance to access regular subject leader updates so that staff have access to high quality professional development. Needs for CPD are identified through regular monitoring and the maths lead provides opportunities for all staff to explore and develop their subject knowledge through staff meetings.